

NOTES ON THE GENUS CLERODENDRUM (VERBENACEAE). X

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This paper is a continuation of the notes on this genus begun by me in *Phytologia* 57: 157 (1985) and most recently continued in the issue immediately preceding the present one.

CLERODENDRUM Burm.

Additional bibliography: Mold., *Phytologia* 58: 329--359. 1985.

Chevalier (1913) lists an unidentified species of this genus, represented by *Chevalier 6521*, from upper Chari, Central African Republic, which he describes as a "Liane s'élevant de 4 à 5 mètres de hauteur, fleurs blanches".

CLERODENDRUM CALAMITOSUM L.

Additional bibliography: Stapf, *Trans. Linn. Soc. Lond.*, ser. 2, 4: 522. 1896; Koord., *Meded. Lands Plant. Bogor.* 19: 558. 1898; Woodrow, *Journ. Bomb. Nat. Hist. Soc.* 12: 360. 1899; Koord. & Val., *Meded. Lands Plant. Bogor.* 42 [Beijdr. Booms. Java 7]: 212. 1900; Vorderman, *Teysmannia* 11: 217. 1900; Boorsma, *Bull. Inst. Bot. Buitenz.* 14: 8. 1902; T. Cooke, *Fl. Presid. Bomb.*, ed. 1, 3: 433. 1906; Gamble in King & Gamble, *Journ. Asiat. Soc. Beng.* 74 (2 extra): 827. 1908; Gerth van Wijk, *Dict. Plantnames*, imp. 1, 1: 335. 1911; Hosseus, *Bot. Centralbl. Beih.* 28 (2): 429. 1911; Craib, *Contrib. Fl. Siam vicot.* 165. 1912; Koord., *Exkursionsfl.* 3: 138. 1912; E. D. Merr., *Fl. Manila*, imp. 1, 403. 1912; Gerth van Wijk, *Dict. Plantnames*, imp. 1, 2: 111 & 876. 1916; Heyne, *Nutt. Plant. Ned. Ind.*, ed. 1, 4: 119--120 & xxii. 1917; H. Hallier, *Meded. Rijks herb Leid.* 37: 74--75. 1918; R. N. Parker, *For. Fl. Punjab*, ed. 1, 400. 1918; H. J. Lam, *Verbenac. Malay. Arch.* 251, 257, & 363. 1919; Bakh. in Lam & Bakh., *Bull. Jard. Bot. Buitenz.*, ser. 3, 3: 74, 82, 108, & viii. 1921; E. D. Merr., *Bibl. Enum. Born. Pl.* 516. 1921; E. D. Merr., *Philip. Journ. Sci.* 19: 377. 1921; E. D. Merr., *Enum. Philip. Flow. Pl.* 3: 400. 1923; Ridl., *Fl. Malay Penins.* 2: 629. 1923; R. N. Parker, *For. Fl. Punjab*, ed. 2, 400. 1924; Heyne, *Nutt. Plant. Ned. Ind.*, ed. 2, 1: 24 (1927), ed. 2, 2: 1321--1322 (1927), and ed. 2, 3: 1645. 1927; Stapf, *Ind. Lond.* 2: 238. 1930; Backer, *Onkruidfl.* 2 [Handb. Suiker.-Cult. 7]: 548--549. 1931; Schwenke, *Zytol. Untersuch. Verb.* 38. 1931; Kloppenburg-versteegh, *Wenk. Raadgev. Betreuf. Gebr. Ind. Pl.*, ed. 4, 60. 1934; L. H. Bailey, *Lists Florists Handl. Verbenac.* [mss.]. 1935; Patermann, *Beitr. Zytol. Verbenac.* 38--39, 48, [55], & [56], pl. 4, fig. 40--46 & pl. 5, fig. 10. 1935; Dop in Lecomte, *Fl. Gén. Indo-chin.* 4: 851 & 867--868. 1935; Fletcher, *Kew Bull. Misc. Inf.* 1938: 431. 1938; Mold., *Alph. List Comm. Vern. Names* 4, 18, & 26. 1939; Mold., *Lilloa* 4: 332. 1939; Mold., *Prelim. Alph. List Inv. Names* 18, 21, & 53. 1940; Mold., *Suppl. List Comm. Names* 10 & 11. 1941; Sorgdrager, *Pharm. Tijd. Ned. Ind.* 4. 1941; Mold., *Alph. List Inv. Names* 16, 19, & 56. 1942; Mold., *Known Geogr. Distrib. Verbenac.*, ed. 1, 60--65, 76, & 89. 1942; Mold., *Phytologia* 2: 98. 1945; Savage, *Cat. Linn. Herb.* 110. 1945; Blume, *Cat. Gewass.*,

imp. 2, 82. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 560. 1946; Mold., Alph. List Cit. 1: 9, 22, 43, 46, 69, 78, 131, 220, & 225. 1946; Mold., Alph. List Inv. Names Suppl. 1: 7. 1947; Mold., Alph. List Cit. 2: 353, 358, 410, 413, 489, 560, 562, 563, 579, 581, 601, & 618 (1948), 3: 749, 814, 837, 946, & 963 (1948), and 4: 1008, 1065, 1094, 1096, & 1154. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 76, 138, 139, 141, 143, 144, 146, 158, & 180. 1949; Mold. in Humbert, Fl. MadAG. L&S: 149, 178--180, & 267, fig. 28 (6 & 7). 1956; Syngé in Chittenden, Roy. Hort. Soc. Dict. Hort., ed. 2, 1: 504 & 505. 1956; T. Cooke, Fl. Presid. Bomb., ed. 2, imp. 1, 2: 513. 1958; Anon., Kew Bull. Gen. Ind. 77. 1959; Mold., Résumé 88, 157, 167, 175, 179, 183, 187, 189, 190, 193, 194, 197, 198, 215, 261, 268, 271, 362, 391, & 448. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 560. 1960; Hundley & Ko in Lance, Trees Shrubs Burma, ed. 3, 202. 1961; L., Mant. Pl., imp. 2, 1: 90. 1961; Gerth van Wijk, Dict. Plantnames, imp. 2, 1: 335 (1962) and imp. 2, 2: 111 & 876. 1962; Mold., Résumé Suppl. 4: 7. 1962; Backer & Bakh., Ind. Java 2: 610. 1965; Burkill, Dict. Econ. Prod. Malay Penins. I: 589--590. 1966; T. Cooke, Fl. Presid. Bomb., ed. 2, imp. 2, 2: 513. 1967; E. D. Merr., Fl. Manila, imp. 2, 403. 1968; Gerth van Wijk, Dict. Plantnames, imp. 3, 1: 335 (1971) and imp. 3, 2: 111 & 876. 1971; L., Mant. Pl., imp. 3 [Cramer, Hist. Nat. Class. 7:] 90. 1971; Mold., Fifth Summ. 1: 148, 264, 272, 285, 299, 304, 315, 322, 329, 332, 358, 441, 453, & 461 (1971) and 2: 663, 732, 863, & 972. 1971; Wittstein, Etymol.-bot. Handwörterb., imp. 2, 206. 1971; Backer, Atlas 220 Weeds [Handb. Cult. Sugar-cane 7:] pl. 522. 1973; Farnsworth, Pharmacog. Titles 9 (2): iv & 115. 1974; Hosozawa, Kato, & Munakata, Phytochem. 13: 308--309. 1974; Mold., Phytologia 28: 454 & 455. 1974; Asher, Guide Bot. Period. 1: 616. 1975; Mold., Phytologia 31: 396. 1975; Anon., Biol. Abstr. 61: AC1.581. 1976; Mold., Phytologia 34: 267. 1976; Hsiao, Fl. Taiwan 6: 121. 1980; Mold., Phytol. Mem. 2: 140, 252, 259, 275, 288, 295, 306, 312, 320, 322, 348, 384, 387, 390, 394, & 534. 1980; Manilal & Sivarajan, Fl. Calicut. 233. 1982; Mold., Phytologia 50: 258. 1982; Nair & Ansari, Journ. Econ. Tax. Bot. 3: 605 & 606, fig. 1--4. 1982; Sivarajan & Manilal, Journ. Econ. Tax. Bot. 3: 414--815. 1982; H. N. & A. L. Mold. in Dassan. & Fosb., Rev. Handb. Fl. Ceyl. 4: 468. 1983; Mold., Phytologia 57: 37, 334, & 338 (1985) and 58: 185, 197, 211, 344, & 358--359. 1985.

Illustrations N. L. Burm., Fl. Indica pl. 44. 1768; W. J. Hook., Curtis Bot. Mag. 88 [ser. 3, 18]: pl. 5294 (in color). 1862; Lem., Illust. Hort. 10: pl. 358. 1863; Patermann, Beitr. Zytol. Verbenac. pl. 4, fig. 40--46, & pl. 5, fig. 10. 1935; Mold. in Humbert, Fl. Madag. 174: 179, fig. 28 (6 & 7). 1956; Backer, Atlas 220 Weeds [Handb. Cult. Sugar-cane 7:] pl. 522. 1973; Nair & Ansari, Journ. Econ. Tax. Bot. 3: 606, fig. 1--4. 1982.

A branched shrub or subshrub, mostly 0.5--1 m. (sometimes to 2 m.) tall; stems erect, terete, rhizomatous, sometimes tomentose; branches and twigs slender, very obtusely tetragonal, unarmed, gray or brownish, densely or sparsely puberulent, very medullose, the older ones glabrous; nodes not annulate; principal internodes 1.5--4.5 cm. long; leaves decussate-opposite or approximate, the uppermost some-

times alternate, wide-spreading, petiolate; petioles slender, 0.5--4 cm. long, densely puberulent; leaf-blades thin-chartaceous or sub-membranous, bluish-green or bright-green on both surfaces, oblong or elliptic or tending to be widest above the middle, sometimes ovate-elliptic or oval, 2.5--14 cm. long, 1.5--8 cm. wide, apically acute or obtuse in outline, marginally rather coarsely and irregularly crenate-dentate or dentate-serrate from $\frac{1}{2}$ the way up to the apex with broadly triangular apically acute teeth, basally acute or obtuse and centrally cuneate into the petiole, pubescent or lightly pulverulent to glabrate above, more or less pulverulent-puberulent (especially along the larger venation) beneath or becoming subglabrate on the lamina, those subtending the cymes much smaller; midrib slender, flat above, prominulous beneath, usually more densely puberulent on both surfaces than the lamina; secondaries slender, 4--6 pairs, ascending, rather straight, more or less irregularly joined near the margins and sending branches to each tooth-tip, prominulous beneath, flat above; vein and veinlet reticulation very slender, usually obscure or indiscernible above, the larger portions slightly prominulous beneath; inflorescence axillary or supra-axillary, leafy, the cymes solitary, opposite, crowded toward the tips of the twigs, widely divaricate, 3--10-flowered, 1--3 times dichotomous, 6--11 cm. long, 3--5 cm. wide, puberulent throughout, often forming large and apparently terminal panicles; peduncles very slender, terete, 1.8--4.5 cm. long, puberulent, mostly light in color and surpassing the subtending leaves; pedicels very slender and elongate, 5--21 mm. long, puberulent, those under the central flowers often longer; bractlets spatulate or linear, small, usually few; prophylla linear-subulate, 2--4 mm. long, puberulent; bracteoles minute; flowers very fragrant at night with the odor of jasmine, expanding at night; calyx green or often red-tinged, deeply 5-parted to about the middle or almost to the base, 6--10 mm. long, spreading, externally puberulent, its lobes elliptic or lanceolate to linear, to 7 mm. long and 3 mm. wide, apically acute or acuminate; corolla white or cream-color, about 3.5 cm. long, its tube mostly cream-color, cylindrical-infundibular, about 2.5 cm. long, usually 3--4 times as long as the calyx, externally puberulent or pubescent, internally glabrous, the lobes oblong or narrowly obovoid, about 8 mm. long and 5 mm. wide, apically obtuse, omnifarious or subequal with the odd one narrower; stamens 4, didynamous, much exserted; filaments filiform, curvate, cream-color; anthers brown; pistil cream-color; style filiform, to 4.5 cm. long, exserted; stigma bifid, the branches somewhat unequal; ovary ovoid, about 2 mm. wide, 4-celled, 4-ovulate; fruiting-calyx accrescent, wide-spreading in star-like fashion; fruit drupaceous, violet-black to black, globose, about the size of a cherry, shiny.

This species is found from Indochina and Malaya to the Philippine Islands, Sumatra, Java, and Borneo, usually regarded as native only in Indonesia, probably only escaped and naturalized elsewhere. It is widely cultivated in parts of the United States, West Indies, Central and South America, Europe, India, Indonesia, the Molucca and Sunda Islands, and Mauritius. It is not yet known from Madagascar or the Comoro Islands, but is to be expected in gardens there. It

tends to escape readily from cultivation in tropical regions and has become a weed in cultivated areas of Kerala, India, and in sugar plantations elsewhere.

In the Linnean Herbarium, genus 789 [810], *Clerodendron* [spelled thus on the outside cover, *Clerodendrum* on the inside cover], sheet no. 4 is inscribed "*calamitosum*" in Linneus' own handwriting. There are three specimens on the sheet, only the upper ones are Linnean; the lower one is inscribed "2 e Batavia D. Banks J. E. S[mith]" and was added later according to Savage. All three specimens are correctly identified and the two upper ones (really only fragments) should be regarded as the type of the species.

It is to be noted that Jackson (1893) gives the nativity of the species as "Malaya"; Loudon (1830) and Syngé (1956) aver that it was introduced into cultivation in England in 1823 from the "E. Indies".

Clarke (1885) tells us very truly that the species "appears closely allied to *C. phlomoides*" while Hallier (1918) claims that it is also very closely related to *C. garrettianum* Craib, *C. griffithianum* C. B. Clarke, *C. klemmei* Elm., *C. mindorense* Merr., and *C. fastigiatum* (Hunter) H. J. Lam.

Collectors have found this plant growing in grasslands, along paths and roadsides, on campo on terra firme, in "abandoned land, cachuerinhã, in cultivated and recently cultivated areas, in sandy soil, at 100--750 m. altitude, in flower from January to April, June to August, October, and November, and in fruit in July. Blume (1826) asserts that it flowers throughout the year, while Bojer (1837) says "Fl. à diverses époques de l'année". Cooke (1906) asserts that in Bombay it flowers in September and October.

The corollas are described as having been "white" on Arnoldo-Broeders 3520 & 3530, Bruinier 109, Ducke s.n., Hallier 4487a, Pancho 2946, Silva s.n., Van Steenis 7804, and Zollinger 3180, "milk-white" on Hallier 4487, "creamy-white" on Beguin 981 and Clemens & Clemens 7964, "cream" on Kiah S.110, and "red" on Beumée A.258 -- if the Beumée description is accurate, a color form designation, at least, is indicated.

The species is said to be "subspontaneous (?)" at Manaus, Brazil, according to Silva, while Ducke found it growing in abandoned land, also in Amazonas, Brazil. Pancho collected it from cultivated material and reports it cultivated "throughout" the Philippine Islands; Kiah found it in cultivation in Singapore, noting: "the original from Java". Bailey (1935) reports it offered to the horticultural trade by a dealer in Singapore. Cruz describes it as a "weed" in the Philippines. Ducke describes it as a "tree", but this is doubtfully accurate.

Merrill (1923) reports the species from Luzon, Mindanao, and Basilan in the Philippines, where, he says, it is "Chiefly in cultivation for ornamental purposes, occasional in waste places about towns. Malay Peninsula, Sumatra, Java."

Vernacular and common names recorded for *C. calamitosum* are "Baum des Elendes", "calamitous clerodendrum", "cheira de noite", "glaseterplant", "hurtful clerodendron", "jasmin de Bernardes",

"kajoe gambir", "kedji beling" [a name also applied to *Desmodium gangeticum* DC.], "kembang boegang", "kembang boegang", "ketji bëling", "kümmerlicher Losbaum", "menado", "péragu calamiteux", "pitja beling", "puan bouga", "rampige lotboom", "romiet", and "thawka".

The specific epithet chosen by Linneus for this species may be translated as "the reverse of being useful in medicine", but there seems to be no recorded evidence of the plant having any harmful properties. In fact, Sorgdrager reports its being used for medicine in Java. Backer & Bakhuizen (1965) tell us that it is "cultivated [in Java] as an ornamental or medicinal plant, and in many places (especially in dry regions) naturalized in settled areas; village groves, coconut groves, forest borders, roadsides". Burkill (1966) reports its use as a bedding plant. He speaks of the species as "A native of Java, which is cultivated in gardens in Malaya". He quotes Heyne (1917, 1927) to the effect that "It is one of the plants used by Javanese trick-performers who chew glass. The performer first chews the leaves of this or of one of the other plants which may be substituted, and then chews the glass. To what extent chewing the plant induces salivation is unrecorded. The chewing of glass, without injury to the gums and other parts of the mouth, is attributed to good teeth, coolness, and sufficient assurance. The Javanese argue that the leaf, which enables glass to be treated thus, must be good also for stone in the kidney, and accordingly administer it."

Clerodendrum calamitosum serves as host plant for the fungus *Ascidium clerodendri* P. Henn. in the Philippines.

Hosozawa and his associates (1974) obtained a "new diterpenoid 3-epicaryoptin from *Clerodendron calamitosum* L. It is interesting in view of biogenesis that caryoptin is not found, but 3-epicaryoptin is observed in this plant. This new compound has a bitter taste and possesses antifeeding activity against the larvae of *Spodoptera litura* F."

Burman's original (1768) description of *Volkameria alternifolia* is "ramis inermibus, foliis alternis ovatis dentatis, floribus terminalibus. Puan-Bomga. Javanis. Rami simplicissimi glabri, cortice albicante. Folia alterna patentia petiolata ovata dentibus inaequalibus acuminata. pedunculi longissime terminales".

Poiret (1804) discusses the early history of this taxon: "Cette espèce diffère du *Clerodendrum fortunatum* par la disposition de ses fleurs en une panicule étalée, par ses feuilles ovales & non lanceolées, très-irrégulièrement dentées à leurs bords.

"Sa tige est droite, ligneuse, garnier de feuilles pétiolées, opposées (alternes d'après Burman), glabres, nues à leurs deux faces, ovales, obtuses ou aiguës, mais arrondies à leur sommet, entières & rétrécies à leur base, dentées irrégulièrement à leurs bords, portées sur des pétioles qui n'ont qu'un tiers de leur longueur. Le sommet des tiges se divise en quelques rameaux courts, fortis de l'aisselle des feuilles, eux-mêmes un peu feuillés, & se terminant chacun par une panicule partielle de fleurs, dont l'ensemble forme une panicule générale très-étalés. Les fleurs sont un peu plus petites que dans les autres espèces, longuement pédonculées. Leur calice est divisé (d'après la figure donnée par Burman) en cinq foli-

oles lanceolées, aiguës; le tube de la corolle est presque trois fois de la longueur du calice, & les divisions de son limbe sont courtes, ovales & réfléchies. Cette plante croît à l'île de Java.

Deux questions importantes & difficiles à résoudre se présentent relativement à cette espèce. Linné regarde son *Clerodendrum calamitosum* comme le *Volkameria alternifolia* de Burman; mais il n'est point d'accord avec ce botaniste sur deux points essentiels. Linné dit que sa plante a les feuilles opposées, tandis que les feuilles alternes sont un des caractères de la plante de Burman; qu'il les décrit & les représente telles; en outre, ce dernier auteur rapporte sa plante aux *Volkameria*. Apparemment qu'il en avoit observé les fruits, quoiqu'il ne nous en parle pas, & qu'il avoit reconnu que les offelets contenoient chacun deux semences.

"Linné a donc observé la même plante, & a reconnu qu'elle n'avoit qu'une seule baie & des feuilles opposées. Comment en a-t-il conclu que c'étoit la même que celle dont parle Burman? Deux mots à ce sujet euffent levé tous les doutes, & nous auroient appris que Burman avoit commis une erreur, & sur la disposition des feuilles, & sur le caractère des fruits de cette plante. Je ne sais pas au reste si Linné a parlé de cette plante ailleurs que dans l'ouvrage que j'ai cité. Il est possible encore que la position des feuilles varie dans cette plante, & qu'elles soient quelquefois alternes à l'extrémité des rameaux. Nous avons vu, par exemple, à l'article *pedali*, que Burman avoit décrit & représenté le *Pedaliium murex* avec des feuilles alternes, tandis que les individus de cette plante, rapportés par les voyageurs, & que nous avons examinés, avoient tous les feuilles opposées, très-semblables pour le reste à la plante de Burman." Merrill (1921) avers that "Both species were described from Javan material, Burman's clearly being synonymous with the one described by Linnaeus one year earlier.....both descriptions were probably based on material of similar origin."

Houllét (1867) comments that "Il en est des plantes comme des gens, chez les unes comme chez les autres, on en trouve dont le nom n'est pas flatteur; celle qui fait l'objet de cette note se trouve dans ce cas. En effet, le mot latin *calamitosum*, en français calamiteux, sonne mal à l'oreille, ce qui se comprend: il signifie calamité, c'est-à-dire fléau, etc., une mauvaise chose enfin. Hâtons-nous de dire qu'il n'en est pas ainsi pour le cas qui nous occupe et que le *Clerodendron calamitosum* L., est au contraire, une très-belle et bonne plante, malheureusement trop rare et trop peu répandu. Elle est originaire de Java....Le *Clerodendron calamitosum*, auquel on ne pourrait guère reprocher que de n'être pas nouveau, est une très-bonne plante qu'il serait très-avantageux de répandre dans les cultures. Il a le grand avantage d'être excessivement floribond (les boutures à peine reprises se couvrent de fleurs), de fleurir à partir du mois d'octobre jusqu'en janvier, février, par conséquent à une époque où les fleurs sont rares. On le multiplie de boutures qu'on étouffe sous cloche, à partir de février et mars. Bien que cette espèce soit robuste, elle s'accommode néanmoins très-bien de la serre chaude."

Hooker (1862) comments that "This is a modest, unobtrusive plant, with its pure white blossoms, as compared with the gorgeous scarlet-

flowered species now commonly cultivated in our stoves, such as *Clerodendron infortunatum*, *squamatum*, *fallax*, *glandulosum*, *Bethuneanum*, etc. It is native of Java, but though figured and described by Burmann, in his "Flora Indica", nearly a century ago, it has only recently been known in our gardens."

Sivarajan & Manilal (1982) note that "Clarke....has reported this species from Malacca and Java. From India, Cooke (1906) has recorded it as an ornamental, grown in Bombay gardens. In South India, the species has been recorded only from Andhra Pradesh....The authors have made the collections from Feroke and Ramanattukara near Calicut in Kerala, where it thrives in waste grassy places on the roadsides with their abundant beautiful white flowers during August-September."

Hasskarl (1855) describes his var. *glabriusculum* as "foliis ovato-ellipticis utrinque acutis, vix in prima juventute pube obsessis, glabriusculis (1--2 poll. longis, 8--10 lin. latis) grosse serrato-dentatis." On the other hand, his var. *molle* has "foliis oblongo-ellipticis in utraque pagina minutissime molliterque puberulis, utrinque attenuatis, minute serrato-dentatis (2--3,5 poll. longis, 10--16 lin. latis). -- Habitat Javam orientalem, uhde cl. Zollinger varietatem hanc insignem affulit." He goes on to say that "Deze beide varieteiten, zijn kleine heesters van slechts een paar voeten hoogte en gelijken zeer veel op elkander; ze zijn wegens hunne opstaande bloemtrossen, met geelachtig witte, betrekkelijk neg al groote bloemen en milden bloei wel waardig, in tuinem aangeplant te worden. De vermenigvuldiging geschiedt zoo wel door zaden, als door wertelspruiten. De eerste behoort hier te huis en de laatste is door den heer Zollinger uit Banjoewangi towgezenden."

It is worth recording here that the *Clerodendron calamitosum* var. *glabriusculum*, referred to above, is based on an unnumbered Horsfield collection from Java deposited in the Utrecht herbarium; *C. phlomoides* f. *luxurians* is based on another Horsfield collection, this one from Pajittau, Java, deposited in the British Museum herbarium; and *Verbena clerodendron* is based on Froes 20462 in the Britton Herbarium at the New York Botanical Garden.

Nair & Ansari (1982) cite Ansari 64713 and Supt. Agr. Res. Sta. s.n. from Kerala, India, and comment that "During a recent plant exploration tour in the Cannanora district of Kerala state, a common weed was found growing near human settlements. This on critical studies was identified as *Clerodendron calamitosum* L., a native of Malaya and Java. A very old herbarium specimen of this plant collected around 1930 from a garden in Kasaragod of this district [was later found in the] Madras Herbarium. From the collector's note on this sheet it is evident that the plant was introduced for its ornamental value and was restricted to that garden at that time. However, within these 50 years it [has been] naturalised well in this district. Now this plant has become one of the very common weeds of this district growing among coconut groves, road-sides and other cultivated and fallow fields."

Ridley (1923) cites Maingay s.n. from Malacca, but adds "no doubt a garden plant."

Hosseus (1911) cites Hosseus 84 from Thailand, but Fletcher (1938)

says of this collection "I have not seen this plant and am unable to say what it may be".

Hallier (1918) cites Blume 2277a, Reinwardt 1273 and Zollinger 3180 from Java, Korthals s.n. from Sumatra, Hallier 4487 from Basilan, and Hallier 4487a from Luzon in the Philippines. He quotes Ridley and Gamble in the assertion that it is in Malacca only as a garden escape.

Merrill (1921) regards *C. eriosiphon* Schau. and its var. *parvifolium* Miq. as synonyms of *C. calamitosum*, citing only Korthals s.n. from Kalimantan. I regard *C. eriosiphon* as conspecific with *C. disparifolium* Blume.

It should be pointed out here that the *C. Smith* s.n. [Molucca], Staunton s.n. [Sunda], J. B. s.n., Zollinger 731, Kollman s.n., and Horsfield s.n. in the British Museum herbarium do not actually indicate on their labels that they came from cultivated material, but it seems most probable that they did. Also, it may be noted here that the Burman (1768) work in the bibliography of this taxon is sometimes erroneously cited as "1767".

Material of *Clerodendrum calamitosum* has been misidentified and distributed in some herbaria as *C. colebrookianum* Walp., *C. fragrans* Vent., *C. phlomoides* L., and *C. serratum* Spreng. On the other hand, the Hosseus 84x, distributed as *C. calamitosum*, actually is *C. urticifolium* (Roxb.) Wall.

Citations: BRAZIL: Amazonas: Ducke s.n. [29.IV.1941] (Be--43399, W--2592936); M. B. da Silva s.n. [Marco 1950] (N). Pará: Fróes 20462 (Be--15975, N, W--2439080). MASCARENE ISLANDS: Mauritius: Bélanger s.n. [Herb. Reichenbach f. 129850] (V). INDIA: Andhra Pradesh: Bahadur 166 [Herb. Hyderabad. 533] (Hi--209883). Kerala: Manilal 8 (Ac). CAMBODIA: Bejand 308 (N). GREATER SUNDA ISLANDS: Bawean: Buwalda 3302 (Bz--72900). Celebes: Koorders 19511b [132] (Bz--19031, Bz--19032); Noerkas 2 (Bz--19029, Bz--19030). Java: Backer 2621 (Bz--18959), 3454 (Bz--18993), 6413 (Bz--18961, Bz--18962), 6892 (Bz--18995, Bz--18996), 6946 (Bz--18994), 7019 (Bz--18960), 12099 (Bz--18958), 26474 (Bz--18975), 26574 (Bz--18997), 34995 (Bz--18977), 34996 (Bz--18983, Bz--18984, Bz--18985), 34997 (Bz--18986), 34998 (Bz--18987, Bz--18988, Bz--18989), 34999 (Bz--18979), 35000 (Bz--18990), 35238 (Bz--18982); Becking 344-95 (Bz--18974), 602-281 (Bz--18991); Beume 1520 (Bz--18970), 3972 (Bz--19001), 4436 (Bz--18999), 4945 (Bz--18981), 5565 (Bz--18978), s.n. [1.1917] (Bz--18969); Bijhouwer 50 (Bz--18973); Blokhuis s.n. (Bz--18998); Blume s.n. (L, M); Bremekamp s.n. (Bz--19002); Gutterink 3168 (Bz--18963); Herb. Banks s.n. (N--photo); Herb. Hort. Bot. Jav. s.n. (Pd); Herb. Linneus 810/4 (Ls--type, N--photo of type); Horsfield s.n. (Ut--49912); Junghuhn s.n. (L); Kalshoven 1647 (Bz--18967); Kollmann s.n. (M); Koorders 27211b [620*] (Bz--19010, Bz--19011), 41367b [319*] (Bz--19008, Bz--19009); Ploem s.n. (Bz--19004); Scheffer G.10 (Bz--19003); Scholte 2374 (Bz--18957); Ultee 49 (Bz--18968); Vorderman s.n. [Soerakarta 1899] (Bz--19006, Bz--19007), s.n. [Batavia] (Bz--19005); Wisse 45 (Bz--18964), 122 (Bz--19000), 819 (Bz--18992); Wolff von Wulfing 1212 (Bz--18965), 1217 (Bz--18966), 1246 (Bz--18971). Madura: Backer 19042 (Bz--19019), 19342 (Bz--19012), 19637 (Bz--19011, Bz--19023), 19957 (Bz--19020, Bz--19021), 20330 (Bz--

19016), 20571 (Bz--19017, Bz--19018), 20758 (Bz--19015), 20867 (Bz--19013, Bz--19014). Sabang: *Beume A.258* (Bz--19034). Sarawak: *Kudi s.n.* [Herb. Sarawak For. Dept. S.33733] (Ld). Sumatra: *Bouman-Houtman 22* (Bz--19033); *LBrzing 3822* [822] (Bz--19036). Tebingtinggi: *Bruinier 109* (Bz--19035). LESSER SUNDA ISLANDS: Bali: *Van Steenis 7804* (Bz--19024); *BAnnemeijer 1579* (Bz--19037). MOLUCCA ISLANDS: Amboina: *Docters van Leeuwen-Reijnvaan 8658* (Bz--19026, Bz--19027); *Rant 581* (Bz--19025). Ternate: *Anang 127a* (Bz--72990); *Beguin 981* (Bz--19028). PHILIPPINE ISLANDS: Luzon: *Clemens 7030* (Ca--274253), *7089* (Ca--274182); *E. D. Merrill 3312* (N, W--438291), *3348* (N, W--438828), *3459* (N, W--438441). Mindoro: *M. T. Cruz 178* (Ur). CULTIVATED: Borneo: *Buebridge s.n.* (K). Brazil: *Coelho de Moraes 1165* (Ld); *Pickel 2263* (W--1473300). Curaçao: *Arnoldo-Broeders 3520* (Ba, Ft--9832). Egypt: *Din 123* (Gz); *Mahdi s.n.* [25/11/1968] (Gz). England: *Herb. Hort. Bot. Reg. Kew 15* (K, N); *Mornay 77/1857* (K). Germany: *Herb. Martius s.n.* [H. B.] (Br). India: *Bourne 2773* (K); *Gamble 17135* (K); *Herb. Blatter 15484* (Xa), *35277* (Xa); *Jaffrey s.n.* [Madras Hort. Gard. 1856] (Ed). Java: "*J. B.*" *s.n.* (Bm); *Bakhuizen 3209* [3211] (Ut--24893), *s.n.* [4 Juni 1918] (Bz--18956); *Herb. Hort. Bot. Bogor. XI.G.63* (Bz--25749), *XII.B.VI.2* (Bz--26242), *XV.K.A. XLVI.16* (Bz--26468), *s.n.* (Bz--18976); *Horsfield s.n.* [Pajittau] (Bm, Bm, Bm); *Kollmann s.n.* (Bm); *Sorgdrager 71* (Bz--18972); *Zollinger 731* (Bm). Mauritius: *Bouton s.n.* [1831] (P); *Herb. Hooker s.n.* (K). Molucca Islands: *C. Smith s.n.* (Bm, Bm). Philippine Islands: *Pancho 2946* (Ba); *Quisumbing s.n.* [F. C. Gates 7908] (Mi); *Vidal 3452* (K). Russia: *Herb. Fischer s.n.* (L, L, L); *Herb. Hort. Bot. Imp. Pet. s.n.* [1835] (L, L). Sarawak: *Clemens & Clemens 7964* (N). Singapore: *Kiah S.110* (Ba). Straits Settlements: *J. W. Anderson 9* (K). Sunda: *Staunton s.n.* (Bm). Trinidad: *W. E. Broadway s.n.* [Trin. Bot. Gard. Herb. 8360] (R); *McLean s.n.* [Trin. Bot. Gard. Herb. 5884] (R). Venezuela: *Bailey & Bailey 1757* (Ba); *Vogel 1176* (Mu). LOCALITY OF COLLECTION UNDETERMINED: *Blackburn s.n.* (T, T); *Collector undesignated 295* (Bz--19038); *Herb. Bogoriense 18980* [Bel-lara] (Bz); *Thunberg s.n.* (S). MOUNTED ILLUSTRATIONS: *N. L. Burm.*, *Fl. Indica pl. 44. 1768* (Ld); *Hook.*, *Curtis Bot. Mag. 88* [ser. 3, 18]: *pl. 5294. 1862* (Ld); *Nair & Asari, Journ. Econ. Tax. Bot. 3: 606, fig. 1--4. 1982* (Ld).

CLERODENDRUM CALCICOLA Britton, *Bull. Torr. Bot. Club 39: 9--10* [as "*Clerodendron*"]. 1912; *Mold.*, *Prelim. Alph. List Inv. Names 18 & 19. 1940*; *Mold.*, *Alph. List Inv. Names 16. 1942*.

Synonymy: *Clerodendron* (?) *calcicola* Britton, *Bull. Torr. Bot. Club 39: 9. 1912*. *Clerodendron calcicola* Britton apud Prain, *Ind. Kew. Suppl. 5, imp. 1, 61. 1921*. *Clerodendron ? calciculum* Britton ex *Mold.*, *Prelim. Alph. List Inv. Names 18 & 19 in syn. 1940*. *Clerodendrum calciculum* Britt. apud Alain in León & Alain, *Fl. Cuba, imp. 1, 4: 319 & 322. 1957*.

Bibliography: *N. L. Britton, Bull. Torr. Bot. Club 39: 9--10. 1912*; *Fedde & Schust.*, *Justs Bot. Jahresber. 40 (2): 334. 1915*; *Prain, Ind. Kew. Suppl. 5, imp. 1, 61. 1921*; *Mold.*, *Prelim. Alph. List. Inv. Names 18 & 19. 1940*; *Mold.*, *Known Geogr. Distrib. Verben-ac.*, ed. 1, 24 & 89. 1942; *Mold.*, *Alph. List Inv. Names 16. 1942*;

Mold., *Alph. List Cit.* 1: 64, 187, & 188 (1946), 2: 486 (1948), and 3: 867. 1949; Mold., *Known Geogr. Distrib. Verbenac.*, ed. 2, 43 & 180. 1949; Alain in León & Alain, *Fl. Cuba*, imp. 1, 4: 319 & 322. 1957; Mold., *Résumé* 51, 261, 271, & 448. 1959; Prain, *Ind. Kew.*, imp. 2, 61. 1960; Mold., *Fifth Summ.* 1: 95, 441, & 462 (1971) and 2: 863. 1971; Alain in León & Alain, *Fl. Cuba*, imp. 2, 2: 319 & 322. 1974; Mold., *Phytol. Mem.* 2: 88 & 531. 1980; Mold., *Phytologia* 57: 478. 1985.

A shrub or small tree, to 8 m. tall; branchlets and twigs stout, tough, with very small pith, very obtusely tetragonal or subterete, gray or buff in color, pulverulent-puberulent, becoming only sparsely so in age; bark flaky, in narrow strips; nodes not annulate; principal internodes 1.5--8.5 cm. long; leaves decussate-opposite; petioles stout, 5--14 mm. long, pulverulent-puberulent or becoming subglabrate in age; leaf-blades coriaceous, gray-green above, bright- or yellow-green beneath, shiny, oblong-elliptic, 4--10 cm. long, 2.2--5.2 cm. wide, apically rounded or subacute, marginally subentire or denticulate and sometimes subrevolute, basally cordate or subcordate-emarginate, glabrous above except for the midrib and sometimes more or less impressed-punctate, short-pubescent with stiffly spreading hairs on all the venation beneath; midrib stout, impressed and often slightly strigillose-pubescent above, very prominent beneath; secondaries stoutish, 5--8 per side, impressed above, very prominent beneath, arcuate-ascending; vein and veinlet reticulation very abundant, impressed or subimpressed above, all (to the finest portions) pronouncedly and conspicuously prominent beneath; inflorescence axillary or terminal, small, not abundant; cymes abbreviated, few-flowered, in the fruiting stage 1.5--2.5 cm. long and 1--2.5 cm. wide, subfasciculate; peduncles very much abbreviated and tuberculate or obsolete; fruiting-pedicels stout, 5--8 mm. long, more or less pubescent or puberulent; corolla white; fruiting-calyx indurate, shallowly cupuliform, about 2 mm. long and 6 mm. wide, externally more or less puberulent, its rim subentire and more or less revolute or irregularly split; immature fruit about 8 mm. long

The type of this little-known species was collected by N. L. Britton and J. F. Cowell (no. 9871) on limestone rocks at Corrientes Bay, Pinar del Río, Cuba, between March 10 and 12, 1911, and is deposited in the Britton Herbarium at the New York Botanical Garden. The species has been collected in immature fruit in April. Alain (1957) avers that it is endemic to the coasts of Matanzas and Pinar del Río. Britton (1912) comments that it is "Apparently related to *C. spinosum* Urban of Santo Domingo which has similar leaves with bristle-tipped teeth and villous petioles!"

Citations: CUBA: Matanzas: Ekman 17208 (N, S, W--2113458). Pinar del Río: Britton & Cowell 9871 (N--type); Ekman 17208 (B), 18499 [Herb. Roig 3122] (Es), 18799a (B, N, N, S, W--2113459), 18799b (B, S); Roig 3245 (Es, Ha, N), 8544 (Es).

CLERODENDRUM CALYCYNUM Turcz., *Bull. Soc. Imp. Nat. Mosc.* 36 (2): 222 [as "*Clerodendron*"]. 1863; Mold., *Known Geogr. Distrib. Verbenac.*, ed. 1, 55 & 89. 1942 [not *Clerodendron calycinum* Zipp., 1919].

Synonymy: *Clerodendron calycinum* Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (2): 222. 1863.

Bibliography: Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (2): 222. 1863; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 560. 1893; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 90, 118, & viii. 1921; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 55 & 89. 1942; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 560. 1946; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 128 & 180. 1949; Mold., Résumé 165 & 448. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 560. 1960; Mold., Fifth Summ. 1: 282 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 271 & 534. 1980.

Turczaninow's original (1863) description of this species is: "(*Euclerodendron squamata*). Cl. caule ramisque tetragonis cum petiolis atque inflorescentia adpresse pilosis; foliis petiolatis ovatis aut oblongo-ovatis, acutis vel acuminatis, basi cordatis integerrimis vel obsolete denticulatis, utrinque punctis piliferis exasperatis, subtus pallidioribus glandulis peltatis praeter pilos tectis; cymis axillaribus, inferioribus longissime pedunculatis, paniculam late pyramidatam constituentibus; calycis inflato-campanulati 5-partiti, dense glandulosi, dentibus lanceolatis acuminatis tubum suum multoties superantibus, tubo corollae parum longioribus. India orientalis, Moulmeyn, Griffith No. 296."

Jackson (1893) reduces this taxon to synonymy under *C. infortunatum* L., while Bakhuizen (1921) reduces it to *C. viscosum* Vent. It does not seem to me that it belongs to either of these species because of its leaf-shape, which is far too oblong, based on a photograph of the type, cited below, and not sufficiently cordate at the base. Of the two, it more nearly approaches some narrow-leaved forms of *C. viscosum*.

The *C. calycinum* Zipp., referred to in the synonymy (above), is a synonym of *C. minahassae* Teijsm. & Binn.

Citations: BURMA: Tenasserim: Griffith 296 (Ld--photo of type).

CLERODENDRUM CAMPBELLII Hort. ex Anon., Notes Roy. Bot. Gard. Edinb. List Seeds Coll. 1923: 60 [as "*Clerodendron*"]. 1923; Mold., Prelim. Alph. List Inv. Names 19 nom. nud. 1940; Mold., Alph. List Inv. Names 16 nom. nud. 1942.

Synonymy: *Clerodendron campbellii* Hort. ex Anon., Notes Roy. Bot. Gard. Edinb. List Seeds Coll. 1923: 60. 1923.

Bibliography: Anon., Notes Roy. Bot. Gard. Edinb. List Seeds Coll. 1923: 60 (1923) and 1931: 33. 1931; L. H. Bailey, List Florists Handl. Verb. [mss.]. 1935; Mold., Prelim. Alph. List Inv. Names 19. 1940; Mold., Alph. List Inv. Names 16. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 72 & 89. 1942; H. N. & A. L. Mold., Pl. Life 2: 52. 1943; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 158 & 180. 1949; Mold., Résumé 215, 261, & 448. 1959; Bolger, Rees, Ghisalberti, Goad, & Goodwin, Biochem. Journ. 118: 197--200. 1970; Bolger, Rees, Ghisalberti, Goad, & Goodwin, Tetrahed. Lett. 35: 3043. 1970; Farnsworth, Pharmacog. Titles 5 (11): v & item 13561. 1970; Bolger, Rees, Ghisalberti, Goad, & Goodwin, Biores. Ind. 7: 264 & 376. 1971; Farnsworth, Pharmacog. Titles 5, Cum. Gen. Ind. (1971)

and 6 (10): v & title 18271. 1971; Mold., Fifth Summ. 1: 358 & 441 (1971) and 2: 863. 1971; Hegnauer, Chemotax. Pfl. 6 [Chem. 21]: 671. 1973; Farnsworth, Pharmacog. Titles 6, Cum. Gen. Ind. [32]. 1973; Goad & Goodwin in Reinhold & Liwschitz, Prog. Phytochem. 3: 124, 137, 168--169, 177, & 182--184. 1973; T. W. Goodwin in Runeckles & Mabry, Terpenoids 110 & 236. 1973; Sucrow, Caldeira, & Slopianka, Chem. Ber. 106: 2236--2245. 1973; "J. H. B.". Biol. Abstr. 57: 4223. 1974; Mold., Phytol. Mem. 2: 348 & 534. 1980.

Through the kindness of my friend and colleague of many years, Dr. Peter Hyypio, I have finally been able to determine where this binomial was first effectively (albeit not validly) published. It was mentioned, without description, in the seed list of the Edinburgh botanical garden from 1923 to 1956, almost every year, usually without the "Hort." following the name (except in the earlier years). The only deviation was in 1931 when the name was followed by the hybrid symbol, "X".

It seems most probable that the plant was named in honor of James John Campbell who was the foreman of the Glass Department of the garden's staff at that time, rather than in honor of Thomas Campbell as we stated in our 1948 work.

A communication to me from Ian Hedge, dated 29 August 1985, has this to say: "Your query about *Clerodendrum campbellii* interested us and for some of the older staff members [of the Edinburgh Botanic Garden] the name rang faint bells. After quite a lot of scrabbling about in the literature, garden records, herbarium and talking with people, the story seems to be as follows.

"First of all the epithet was never validly published and we assume that at the time of Jimmy Campbell (who was assistant curator in charge of the Glass Department here up till about the end of the last war), his name got linked with a form (cultivar) of *Clerodendrum thomsonae* with variegated leaves. It then, wrongly, got into the RBG [Royal Botanic Garden] seed lists as *C. campbellii*; it is not to my knowledge anywhere in Notes Roy. Bot. Gard. Edinburgh.

"Although we have no herbarium specimens so labelled, we found in our photographic slide collection a photograph with the label *C. campbellii*; it is the variegated plant and, as far as one can be sure, *C. thomsonae* (of the fascinating nomenclatural history).

"I have not worked through all the old seed lists of the Garden here and thus could not be sure of the date when the name got into print. The assistant curators of the different departments in the Garden were usually responsible for making up the seed lists for their department.

"It is quite an interesting story - especially as the chemists have been at work on it, with the resultant confusion!"

Bolger and his associates (1970) report the isolation of a new sterol from this plant and this is further elaborated by Sucrow and his co-workers (1974) as a naturally occurring "(24S)-24-ethylcholesta-5,22,25-triene-3beta-ol (24S) and its (24R)-epimer from butynylcarbinols with 1-dimethyl-amino-1-methoxy-1-propene in a Claisen rearrangement via the amides.... The known hydrogenation of the products led to porifasterol (24R) and stigmasterol (24S) re-

spectively."

Bailey (1935) reports this plant offered to the horticultural trade only in Edinburgh, presumably by the garden referred to above.

This taxon will be further treated me under *Clerodendrum thomsonae* f. *variegatum*, which see.

CLERODENDRUM CANESCENS Wall., Numer. List [49], no. 1804 hyponym [as "*Clerodendron*"] 1829; Steud., Nom. Bot. Phan., ed. 2, 1: 382 & 383 in syn. 1840; Schau. in A. DC., Prodr. 11: 665. 1847.

Synonymy: *Clerodendron canescens* Wall., Numer. List [49], no. 1804. 1829. *Clerodendron canescens* Wall. apud Kawakami, List Pl. Formos. 84 sphalm. 1910. *Clerodendron canescens* Vahl ex Mold., Alph. List Inv. Names 16 in syn. 1942. *Clerodendrum viscosum* sensu Li ex Hsiao, Fl. Taiwan 4: 421 in syn. 1978 [not *C. viscosum* Vent., 1803].

Bibliography: Wall., Numer. List [49], no. 1804. 1829; Steud., Nom. Bot. Phan., ed. 2, 1: 382 & 383. 1840; Walp., Repert. Bot. Syst. 4: 105 & 106. 1845; Schau. in A. DC., Prodr. 11: 665. 1847; Benth. in W. Hook., Journ. Bot. Kew Gard. Misc. 5: 136. 1853; Buek, Gen. Spec. Syn. Candoll. 3: 105. 1858; Benth., Fl. Hongk. 272. 1861; C. B. Clarke in Hook. f., Fl. Brit. India 4: 589. 1885; Maxim., Bull. Acad. Imp. Sci. St.-Petersb. 31: 83 & 84. 1886; Maxim., Mém. Biol. 12: 518. 1886; Forbes & Hemsl., Journ. Linn. Soc. Lond. Bot. 26 [Ind. Fl. Sin. 2]: 259. 1890; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 560. 1893; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 175. 1895; Kawakami, List Pl. Formos. 84. 1910; Dunn & Tutcher, Kew Bull. Misc. Inf. Addit. Ser. 10: 204 & 205. 1912; J. Matsumura, Ind. Pl. Jap. 2 (2): 531. 1912; Hickel, Bull. Soc. Dendr. France 12: 139. 1913; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 90, 108, & viii. 1921; Sasaki, List Pl. Formos. 351. 1928; Dop in Lecomte, Fl. Gén. Indo-chine 4: 851 & 862. 1935; Kanehira, Formos. Trees, ed. 2, 648--649 & 718. 1936; Mold., Suppl. List Inv. Names 11. 1941; Mold., Alph. List Inv. Names 16. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 56, 58, 59, 72, & 89. 1942; Mold., Phytologia 2: 98. 1945; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 560. 1946; Mold., Alph. List Cit. 1: 103 & 284 (1946), 2: 409, 562, 643, & 644 (1948), 3: 658, 666, 702, 718, 719, 811, & 828 (1949), and 4: 1010--1012, 1102, 1129, 1149, 1234, & 1254. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 131, 133--136, 158, & 180. 1949; Sonohara, Tawada, & Amano, Fl. Okin. 132. 1952; St. John, Nomencl. Pl. 109. 1958; Mold., Résumé 168, 171--175, 215, 261, & 448. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 560. 1960; Hansford, Sydowia Ann. Myc., ser. 2, Beih. 2: 694. 1961; Liu, Illust. Nat. Introd. Lign. Pl. Taiwan 2: 1213, fig. 1021. 1962; Mold., Résumé Suppl. 14: 10. 1966; Yamazaki in Hara, Fl. East. Himal. 268. 1966; Mold., Resume Suppl. 16: 9. 1968; Mold., Fifth Summ. 1: 272, 287, 292--294, 299, 313, 358, 438, & 441 (1971) and 2: 863. 1971; Kooiman, Act. Bot. Neerl. 24: 462. 1975; Hsiao, Fl. Taiwan 4: 420 & 421 (1978) and 6: 121. 1980; Mold., Phytol. Mem. 2: 259, 277, 281--283, 291, 304, 348, & 534. 1980; H. N. & A. L. Mold. in Dassan. & Fosb., Rev. Handb. Fl. Ceyl. 4: 475. 1983; Mold., Phytologia 58: 211 & 345. 1985.

Illustrations: Liu, *Illust. Nat. Introd. Lign. Pl. Taiwan* 2: 1213, pl. 1021. 1962;

A shrub or undershrub, 1--4 m. tall, erect; stems often unbranched, woody or semi-woody, sometimes 2--3 cm. in diameter; branches and branchlets (when present) medium-stout, obtusely tetragonal, densely short-villous with grayish-brown divergent hairs (or subtomentose to white-tomentose), the hairs eventually wearing off; nodes not annulate, slightly flattened; leaf-scars only slightly elevated; principal internodes 1--4.5 cm. long; leaves decussate-opposite; petioles stout, 1.8--10 cm. long, very densely villous with divergent or subreflexed multicellular grayish-brown hairs; leaf-blades membranous, very brittle and fragile in drying, dark-green above (but brunnescent in drying), lighter beneath, ovate or broadly ovate, 7.5--16 cm. long, 5.6--12.2 cm. wide, apically short-acuminate or acute to obtuse, marginally subentire or entire (when immature) or rather irregularly and remotely dentate with rather shallow apically apiculate teeth except at the base and apex, basally subcordate or cordate to truncate, puberulent or sparsely strigillose-pilose above with scattered hairs on the lamina (denser on the larger venation), densely villous beneath especially on the midrib and larger venation with hair similar to that on the petioles; midrib slender, flat above, prominent and very rapidly diminishing in size as the apex is approached beneath; secondaries very slender, 5--7 per side, arcuate-ascending, flat above, prominent and densely villous beneath, joined in many loops near the margins; veinlet reticulation abundant, delicate, indiscernible above, flat beneath; inflorescence cymose, umbellate, solitary or paired in the upper leaf-axils or aggregate in a terminal cluster, long-pedunculate; peduncles stout, 4--9 cm. long, densely brown-villous with spreading hairs like the branchlets, usually bi- or tri-parted at the apex in umbellate fashion, the branches very short, equal, densely bracteate and densely flowered; bracts very abundant and conspicuous, forming a pseudo-involucre under the umbellate flowers, each elliptic, 1--2.5 cm. long, 7--12 mm. wide, apically and basally acute or subacuminate, marginally entire, short-pubescent on both surfaces; flowers large, odorless or fragrant (depending on time of day); calyx green, membranous, about 1 cm. long, externally pubescent, 5-lobed; corolla white, the tube slender, about 1.5 cm. long; stamens exserted; fruiting-calyx enlarged, red, patelliform, the lobes purple, enclosing the fruit; fruit at first green, then red, finally bluish-black or black, composed of 4 nutlets.

The species is based on *Wallich 1804*, collected from material cultivated in the Botanical Garden at Calcutta and originally from China, deposited in the East India Company Herbarium at Kew.

Collectors have encountered the plant in open forests and thickets, forest edges, and open valleys, growing in clumps in shaded canyons and small ravines, in light woods and rocky ground, on open hillsides, and along streamsides, at altitudes of 60--1000 m., in flower in February, April to July, September, October, and December, and in fruit from May to July and September to November. Tsiang describes it as an undershrub in dense mixed woods in Kwangtung;

Keng found it as an undershrub in shady woods; Taan refers to it as abundant on clay slopes; Lau says that it is only "rare" in thickets in loam on dry cliffs; while Lei reports it fairly common as scattered shrubs in sandy soil on dry gentle slopes in forests, but "rare on dry level land" on Hainan island.

Dunn & Dutcher (1912) found it "On Mt. Victoria and other places" in Hong Kong, Lantau Island, New Territory, Swatow, Daiheung, and Macao, blooming there in May. Sonohara and his associates (1952) describes it as a naturalized ornamental on Okinawa. Yamazaki (1966) reports it as native to Indochina, southern China, and Formosa and naturalized in India.

Hsiao (1978) reports *C. canescens* from northern, central, and eastern Formosa, as well as mainland China, citing from Formosa Faurie 299, Hsieh & Kao s.n. [1955], Masamune s.n. [1938], and Price 299 & 707.

The corollas are described as "white" by most authors [e.g., Dunn & Tutcher (1912) and Yamazaki (1966)] and on Ching 2001, Ferris 12092, Hu 10102, Lau 1464, Lei 627, Liang 63080, McClure 3188, Taam 1458, and Tsui 209, but on Tsang 802, Tsang & Fung 271, and Tsui 526 & 625 they are said to have been "red" -- probably the fruiting-calyx, not the corollas, is here being referred to, but if the corollas were truly red, then, obviously, an undescribed color form of the species is indicated. In some other species with normally white corollas, a red-flowered form has been noted by collectors, but, again, it is not certain (to me) that the writers of the labels accompanying the collections did not inadvertently make an error in writing "flowers red" instead of "fruit red", especially since most collectors' handwritten notes use the abbreviations "fls." and "frs."

Clarke (1885) reports *Clerodendrum canescens* cultivated in India and regards it as "closely allied to *C. bracteatum* Wall.", which is most certainly true. Maximowicz (1886) cites Reeves s.n. from southern China and quotes Bentham (1861) as describing it as "frequens in planitie" in Hong Kong, but noting "Extra Chinam non inventum". Actually, *C. canescens* is known from at least six provinces of mainland China.

Jackson (1893) mis-cites this species to Wallich's no. "1800", which is the type collection of *C. bracteatum* Wall., instead of to his no. 1804. Steudel's 1840 publication is sometimes cited as published in "1841", the titlepage date for the whole work. Steudel, as well as more recent authors, including Merrill, regarded *C. canescens* as conspecific to and a synonym of *C. viscosum* Vent., but this is not correct. The two taxa are abundantly distinct, as will be brought out in my forthcoming discussion of the latter species. Similarly, *C. haematocalyx* Hance is regarded as conspecific with and a synonym of *C. canescens* by Matsumura (1912) and Liu (1962), but Hance's plant is plainly *C. villosum* Blume.

Common and vernacular names recorded for *C. canescens* are "kai tim foh", "kusagina", "kwai tim foh", "shirage-kusagi", "taai se shue", and "woolly glorybower".

Hansford (1961) lists *C. canescens* as a host for the fungus *Meliola clerodendri* P. Henn. in Tonkin, Vietnam, based on Bon 5857.

Dunn & Tutcher (1912) give the following key (nomenclature brought

up-to-date by me) to the species of *Clerodendrum* known to them from China:

1. Inflorescence axillary.
 2. Calyx truncate, scarcely toothed.....*C. inerme*.
 - 2a. Calyx acutely 5-fid.....*C. fortunatum*.
 - 1a. Inflorescence terminal, paniculate.
 3. Panicle compact.
 4. Calyx-teeth subulate.....*C. philippinum*.
 - 4a. Calyx-teeth ovate, acuminate.....*C. canescens*.
 - 3a. Panicles lax.
 5. Corolla scarlet; leaves with peltate scales.....*C. kaempferi*.
 - 5a. Corolla whitish; leaves without scales.....*C. cyrtophyllum*.
- Hsiao (1978) gives the following key to the specific and subspecific taxa known to him from Formosa (Taiwan):
1. Twining vines.....*C. thomsonae*.
 - 1a. Erect shrubs.
 2. Inflorescence axillary, 3-flowered; calyx truncate...*C. inerme*.
 - 2a. Inflorescence terminal, in many-flowered cymes or panicles; calyx lobed.
 3. Inflorescence in globose cymose heads; bracts foliaceous.
 4. Calyx and bracts shorter than or as long as the fruits, with large peltate glands.....*C. philippinum*.
 - 4a. Calyx and bracts much longer than the fruits, without peltate glands.....*C. canescens*.
 - 3a. Inflorescence of lax cymes or elongated thyrsi; bracts linear, small.
 5. Leaves with many sand-like glands beneath.
 6. Leaf-margins shallowly toothed, not lobed; inflorescence bright-red.....*C. intermedium*.
 - 6a. Leaves 3--5-lobed; inflorescence orange-red.....*C. paniculatum*.
 - 5a. Leaves without sand-like glands beneath.
 7. Leaf-blades elliptic-lanceolate; corolla-tube short, to 1 cm. long.....*C. cyrtophyllum*.
 - 7a. Leaf-blades ovate to elliptic; corolla-tube oblong, to 3.5 cm. long.
 8. Branchlets, leaves, and inflorescence densely covered with rust-colored tomentum.....*C. trichotomum* var. *ferrugineum*,
 - 8a. Branchlets, leaves, and inflorescences glabrous or only slightly puberulous.
 9. Sepals reddish; leaf-blades ovate, pubescent.....*C. trichotomum*.
 - 9a. Sepals greenish; leaf-blades ovate-lanceolate, subglabrous.....*C. trichotomum* var. *fargesii*.

Material of *C. canescens* has been misidentified and distributed in some herbaria as *C. bracteatum* Wall., *C. foetidum* Bunge, *C. fragrans* Vent., *C. haematocalyx* Hance, *C. paniculatum* L., *C. trichotomum* Thunb., and *C. viscosum* Vent.

On the other hand, the Collector undetermined s.n., Jenkins s.n. [Assam], and Thomson s.n., distributed as *C. canescens*, actually are

C. bracteatum Wall., while Ekeberg s.n. is *C. fortunatum* L., Amano 6251 is *C. lindleyi* Decaisne, and Henry 393 is *C. philippinum* f. *multiplex* (Sweet) Mold.

Citations: INDIA: Assam: *Hooker & Thomson s.n.* [Mont. Khasia] (W--2497099). CHINA: Chekiang: *Ching 2001* (Ca--281837, W--1246860); *Keng 1127* (Ca--362132). Fukien: *Ging 5391* (Ca--322194). Hunan: *Fan & Li 90* (Bz--20946). Kiangsi: *Lau 3982* (S, W--1752728); *Tsiang 10197* (N). Kwangtung: *F. A. McClure 1193* [Herb. Canton, Chr. Coll. 13114] (Ca--287645); *Tak s.n.* [Herb. Lingnan Univ. 17383] (Ca--373905); *Tsiang 2772* (N); *Tsui 209* (N), 526 (Ba, Ca--612259, N, W--1754710), 625 (Bz--20949); *Ying 749* (Ca--358095). Yunnan: *Ferris 12092* (Du--330692); *Maire 2949* (N, W--775707); *C. Schneider 1661* (W--776193). Province undetermined: *Chun & Ting 562* (Ac). CHINESE COASTAL ISLANDS: Hainan: *Chun 6618* (N); *Chun & Tso 43444* (N); *Lau 1464* (N), 3044 (Bi, S); *Lei 627* (B, Ba, Bz--20948, Ca--611528, Mi, N, W--1754221), 693 (B, Ba, N, W--1754261); *Liang 63080* (Mi, Mu, N); *F. A. McClure 3188* [Herb. Canton Chr. Coll. 9736] (Ld--photo, N--photo, Ph); *Tak 634* [Herb. Lingnan Univ. 17383] (Ca--356523), 802 [Herb. Lingnan Univ. 16301] (Ca--326087); *Tsang 802* [Herb. Lingnan Univ. 16301] (Ba, Bz--19039, Ca--13853, N, S, W--1249552); *Tsang & Fung 271* [Herb. Lingnan Univ. 17805] (N). Lantau: *McClure, Herb. Lingnan Univ. 13114* (N, S); *Ying 667* (Du--200924). HONG KONG: *Chan 1059* (Mi); *Chun 6429* (Ca--357802); *Ford s.n.* [14-6-93] (N); *Hu 10102* (W--2731181); *Taam 1458* (Ca--82679, Mi, N, W--2063736); *Weiss 1929* (Bz--20947); *Wilford 405* (K, Ld--photo, N--photo); *C. Wright s.n.* [Hong Kong] (T, W--44910); *Ying 667* (N, W--1513065). MACAO: *Gaudichaud 621* (W--2497074); *Hillebrand s.n.* (K). VIETNAM: Tonkin: *Pételeot 6174* (N, N, W--1759392). TAIWAN: *Asai 21485* (Ca--344609); *Huang 1537* (Ba); *Price 707* (K, N); *Simada 312* (Ca--345393). CULTIVATED: India: *Herb. Hort. Bot. Calcut. s.n.* (K); *Wallich 1804* (Bm--isotype, Bm--isotype, K--isotype, K--isotype, Pd--isotype), 6315A (Pd). MOUNTED ILLUSTRATIONS: Liu, *Illust. Nat. Introd. Lign. Pl. Taiwan* 1213, pl. 1021. 1962 (Ld).

CLERODENDRUM CAPITATUM (Willd.) Schum. & Thonn., *Beskr. Guin. Pl.* 287. 1827 [not *C. capitatum* Hook., 1862, nor Klotzsch, 1937].
 Synonymy: *Volkameria capitata* Willd. in L., *Sp. Pl.*, ed. 4 [5], 3 (2): 384. 1802. *Volkameria foliis ovatis, integerrimis, scabris; floribus terminalibus, capitatis, calyce folioso* Willd. ex Lam., *Encycl. Méth. Bot.* 8: 691 in syn. 1808. *Clerodendron capitatum* Schum. & Thonn. ex Walp., *Repert. Bot. Syst.* 4: 673. 1845. *Clerodendron capitatum* Schum. ex W. J. Hook., *Curtis Bot. Mag.* 74 [ser. 3, 4]: pl. 4355. 1848. *Volkameria capitata* Willd. apud W. J. Hook., *Curtis Bot. Mag.* 74 [ser. 3, 4]: pl. 4355 in syn. 1848. *Clerodendron capitatum* Schum. & Thou. apud Jacks. in Hook. f. & Jacks., *Ind. Kew.*, imp. 1, 1: 560. 1893. *Clerodendron francavilleianum* Buchinger ex J. G. Baker in *Thiselt.-Dyer, Fl. Trop. Afr.* 5: 305 in syn. 1900.
Clerodendron capitatum var. *subdentatum* DeWild., *Étud. Fl. Katanga* 1: 117. 1903. *Clerodendron capitatum* var. *subcordatum* DeWild., *Étud. Fl. Katanga* 1: 117. 1903. *Siphonanthus capitata* S. Moore, *Journ. Linn. Soc. Lond. Bot.* 37: 198. 1905. *Clerodendron obanense* Wernh.,

Cat. Talb. Niger. Pl. 91. 1913. *Clerodendrum francavilleianum* Buchinger ex B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 64 in syn. 1936. *Clerodendron capitatum* var. *subcordatum* DeWild. ex Mold., Alph. List Inv. Names 16 in syn. 1942. *Clerodendron capitatum* var. *subdentatum* DeWild. ex Mold., Alph. List Inv. Names 16 in syn. 1942. *Clerodendrum capitatum* var. *capitatum* [Willd.] ex Huber in Hutch. & Dalz., Fl. W. Trop. Afr., ed. 2, 2: 440 & 443. 1963. *Clerodendrum capitatum* Schum. ex Mold., Fifth Summ. 1: 461 in syn. 1971. *Clerodendrum capitatum* var. *capitatum* Huber ex Mold., Phytol. Mem. 2: 390 in syn. 1980. *Clerodendrum capitatum* var. *capitatum* (Willd.) Schum. & Thonn. ex Mold., Phytol. Mem. 2: 391 in syn. 1980.

Bibliography: Willd. in L., Sp. Pl., ed. 4 [5], 3 (2): 384. 1802; Poir. in Lam., Encycl. Méth. Bot. 8: 691. 1808; Pers., Sp. Pl. 3: 364. 1819; Schum. & Thonn., Beskr. Guin. Pl. 287. 1827; Schum. & Thonn., Kongl. Dansk. Vidensk. Selsk. Afhandl. 4: 61. 1829; Walp., Repert. Bot. Syst. 4: 101 & 109. 1845; Schau. in A. DC., Prodr. 11: 657 & 673. 1847; W. Hook., Curtis Bot. Mag. 74 [ser. 3, 4]: pl. 4355. 1848; Hook. f. & Benth. in W. Hook., Niger Fl. 486. 1849; Buek, Gen. Spec. Sym. CANDOLL. #: 105 & 502. 1858; Seem., Bonplandia 10: 250. 1862; Lefroy, Bull. U. S. Nat. Mus. 25: 97. 1884; Oliv. in W. Hook., Icon. Pl. 16 [ser. 2, 6]: pl. 1559 in textu. 1887; Gürke, Engl. Bot. Jahrb. 18: 172 & 173. 1893; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 560. 1893; Gürke in Engl., Pflanzenw. Ost-Afr. C: 340. 1895; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 1219. 1895; J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 294, 305--306, & 518. 1900; K. Schum., Justs Bot. Jahresber. 28 (1): 496. 1902; DeWild., Ann. Mus. Congo Bot., ser. 4, 1: 117 (1903) and ser. 5, 3: 132. 1909; A. Chev., Sudania 1: 43. 1911; DeWild., Ann. Mus. Cong. Belg. Bot., ser. 5, 3: 468. 1912; A. Chev., Etud. Fl. Afr. Cent. Franc. 1: 244. 1913; DeWild., Bull. Roy. Soc. Bot. Belg. 51 (3) [ser. 2, 1]: 91, 203, 280, & 294. 1913; Prain, Ind. Kew. Suppl. 4, imp. 1, 166. 1913; Wernh., Cat. Talb. Niger. Pl. 91. 1913; J. H. Holland, Kew Bull. Misc. Inf. Addit. Ser. 9 [Useful Pl. Nigeria 3]. 3: 523. 1915; S. Moore, Journ. Bot. Brit. 57: 249. 1919; A. Chev., Expl. Bot. Afr. Occ. Franc. 1: 507--508, 1920; DeWild., Bull. Jard. Bot. Brux. 7: 165. 1920; Fedde & Schust., Justs Bot. Jahresber. 42: 252. 1920; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 75, 86, & viii. 1921; DeWild., Pl. Bequaert. 2: 256. 1922; Irvine, Pl. Gold Coast 11 & 109. 1930; Stapf, Ind. Lond. 2: 238. 1930; Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 273. 1931; Watt & Breyer-Brandwijk, Med. Poison. Pl. S. Afr., ed. 1, 155 & 230. 1932; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 9, 10, 14, 38, 64--66, 92, & 93. 1936; Dalz., Useful Pl. W. Trop. Afr. 454. 1937; Mold., Prelim. Alph. List Inv. Names 19 & 22. 1940; Mold., Alph. List Inv. Names 16, 17, 19--21, 40, & 56. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 45--51, 72, & 89. 1942; Mold., Phytologia 2: 98. 1945; Jacks., Ind. Kew., imp. 2, 1: 560 (1946) and imp. 2, 2: 1219. 1946; Mold., Alph. List Cit. 1: 31, 71, 74, 141, & 204. 1946; Hill & Salisbury, Ind. Kew. Suppl. 10: 55. 1947; Mold., Alph. List Inv. Names Suppl. 1: 6. 1947; H. N. & A. L. Mold., Pl. Life 2: 52 & 85. 1948; Mold., Alph. List Cit. 2: 407, 501, 504, 563--565, 600, 607, & 608

(1948), 3: 761 (1949), and 4: 983, 1153, & 1154. 1949; Mold., *Known Geogr. Distrib. Verbenac.*, ed. 2, 109--118, 120, 158, & 180. 1949; Kerharo & Bouquet, *Pl. Méd. Tox. Côte Iv.* 231. 1950; Roberty, *Pet. Fl. Ouest-Afr.* 179. 1954; Sygne in Chittenden, *Roy. Hort. Soc. Dict. Hort.*, ed. 2, 1: 505. 1956; Jaeger, *Bull. Soc. Bot. France* 104: 192. 1957; Prain, *Ind. Kew. Suppl.* 4, imp. 2, 166. 1958; Mold., *Résumé* 133, 135--139, 141, 143, 145, 146, 149, 150, 215, 261--263, 267, 270, 272, 344, 391, 426, & 448. 1959; Mold., *Résumé Suppl.* 1: 9. 1959; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, imp. 3, 1: 560 (1960) and imp. 3, 2: 1219. 1960; Dale & Greenway, *Kenya Trees* 582. 1961; Hansford, *Sydowia Ann. Myc.*, ser. 2, *Beih.* 2: 689 & 694. 1961; Irvine, *Woody Pl. Ghana* 752 & 753, pl. 32. 1961; Jaeger, *Wonderf. Life Fls.* 104, [162], & 170, pl. 86. 1961; Lind & Tallantire, *Some Comm. Flow. Pl. Uganda*, ed. 1, 147 & 238. 1962; Watt & Breyer-Brandwijk, *Med. Poison. Pl. S. Afr.*, ed. 2, 1047 & 1372. 1962; F. White, *For. Fl. North. Rhodes.* 365 & 367. 1962; H. Huber in Brenan & al., *Kew Bull.* 17: 174 & 576. 1963; H. Huber in Hutchins. & Dalz., *Fl. W. Trop. Afr.*, ed. 2. 2: 440 & 443. 1963; Lawton, *Kirkia* 3: 61. 1963; Meikle, *Kew Bull.* 17: 174. 1963; Seaforth, *W. Afr. Journ. Biol. Appl. Chem.* 7: 28, 29, & 31. 1963; Anon., *Assoc. Étud. Tax. Fl. Afr. Trop. Ind.* 1963: 60. 1964; Langsdale-Br., Osmoston, & Wils., *Veg. Uganda* 112. 1964; Mold., *Résumé Suppl.* 11: 6 (1964) and 12: 6. 1965; Hepper, *Bull. Inst. Fond. Afr. Noire* 27: 495. 1965; Grout de Beaufort & Schnell, *Mem. Inst. Afr. Noire* 75: 9 & 41--43, pl. 9, fig. C & D. 1966; Mold., *Résumé Suppl.* 13: 4. 1966; Schnell & Grout de Beaufort, *Contrib. Étud. Pl. Myrmecod.* 41--43, pl. 9, fig. C & D. 1966; Berhaut, *Fl. Senegal*, ed. 2, 109 & 114. 1967; Mold., *Résumé Suppl.* 15: 6 (1967) and 16: 13. 1968; H. Rose, *Bull. Mus. Natl. Hist. Nat. Paris*, ser. 2, 39: 1008. 1968; Mold., *Résumé Suppl.* 18: 6. 1969; Richards & Morony, *Check List Fl. Mbala* 236. 1969; El-Hamidi, *Pl. Med.* 18: 279. 1970; Farnsworth, *Pharmacog. Titles* 5 (11): v & title 14758. 1970; Gillett, *Numb. Check-list Trees Kenya* 46. 1970; Morley, *Wild Fls. World* pl. 60c. 1970; Vergiat, *Journ. Agric. Trop. Bot. Appliq.* 17: 334--335. 1970; Willaman & Li, *Lloydia* 33, *Suppl.* 3a: 220. 1970; Farnsworth, *Pharmacog. Titles* 5, *Cum. Gen. Ind.* 1971; Lind & Tallantire, *Some Com. Flow. Pl. Uganda*, ed. 2, 146--147, 238, 254, 256, & 259. 1971; Mold., *Fifth Summ.* 1: 209, 210, 212, 214, 215, 217--221, 223, 225, 227, 228, 232, 233, 235, 239, 240, 242, 245, 249, 250, 358, 412, 441, 442, 445, 452, 457, & 461 (1971) and 2: 621, 732, 863, & 968. 1971; Den Outer, *Meded. Landbouwhogs. Wagen.* 72-21: 7 & 15. 1972; Lewalle, *Bull. Jard. Bot. Nat. Belg.* 42 [Trav. Univ. Off. Bujumb. Fac. Sci. C.20]: 76 & [230]. 1972; F. Perry, *Fls. World* 304 & 313. 1972; Jaeger & Mold., *Phytologia* 30: 387, 389--393, 404, & 405, fig. 1--5. 1975; Mold., *Phytol. Mem.* 2: 200, 201, 203--213, 215, 217, 218, 222, 223, 225, 229, 230, 232, 235, 236, 238, 240, 348, 390, 391, 437, 461, & 534--535. 1980; Munz & Slauson, *Ind. Illust. Living Things Outside N. Am.* 127 & 336. 1981; Reis & Lipp, *New Pl. Sources Drugs* 251. 1982; Mold., *Phytologia* 57: 346, 479, & 481 (1985) and 58: 198, 302, 303, & 330. 1985.

Illustrations: W. J. Hook., *Curtis Bot. Mag.* 74 [ser 3, 4]: pl. 4355 (in color). 1848; Irvine, *Woody Pl. Ghana* pl. 32 (b). 1961;

Jaeger, *Wonderf. Life Fls.* [162], pl. 86. 1961; Grout de Beaufort & Schnell, *Mem. Inst. Fond. Afr. Noir* 75: 43, pl. 9, fig. C & D. 1966; Morley, *Wild Fls. World* pl. 60c (in color). 1970; F. Perry, *Fls. World* 304 (in color). 1972; Jaeger & Mold., *Phytologia* 30: 390--393, fig. 1--5. 1975.

A small, handsome, erect, or scrambling to subscentent or scandent shrub or subshrub, often producing basal runners, 1--4 m. tall, sometimes a woody liana to 6 m. long. or even a tree to 10 m. tall [*fide* Chevalier], sometimes appearing to be herbaceous [*fide* Morteham]; stems hollow, ridged, with very stout spines (phyllopodia) to 1.5 cm. long, often with internodal, 2 mm. wide, circular orifices made by in-dwelling ants, often unbranched; branches and branchlets, when present, slender, mostly subterete (when young) or obtusely tetragonal (when older), more or less densely uncinat-puberulent with appressed whitish hairs and more or less densely hirsute with intermingled, stiff, spreading, brownish or fuscous, multicellular hairs 1--1.5 mm. long, the latter densest on young growth and wearing off in age; nodes not annulate, very slightly or not at all flattened; leaf-scars often very much elevated and prominent as spur-like projections 1--2 mm. long on older wood; principal internodes 1--4.5 cm. long, often with circular openings to internal ant-dwellings; leaves decussate-opposite or subopposite, often only approximate (or apparently alternate) with the members of a pair to 2.5 cm. apart, or even subternate, the lower and mature ones very long-petiolate, the upper and immature ones only short-petiolate; petioles very slender, 0.4--5.5 cm. long, deeply canaliculate above with the 2 parallel margins densely brown- or ferruginous-hirsute like the young branchlets, the lower (convex) side near the apex often also sparsely hirsute, basally very slightly, if at all, amplate, leaving a spine-like stub after falling; leaf-blades membranous, dark- or bluish-green above, somewhat lighter beneath, obovate-oblong or elliptic, or the smaller ones subovate, ovate, or obovate, 4.5--30 cm. long, 2--10 cm. wide, apically rather long-acuminate or cuspidate on the lower (larger) leaves, acute or short-acuminate on the upper (smaller) ones (the acumen mostly apically rather blunt), marginally entire or undulate to rather obscurely sinuate-dentate with 1--4 teeth on each margin at and above the middle, basally acute on larger leaves, obtuse or rounded to subcordate on smaller ones, puberulent on both surfaces or very sparsely scattered-pilose above, glabrescent in age, scattered-pilose and punctate on the lamina beneath, more densely pilose or hirsute on the midrib and larger veins beneath, or the younger ones subpilose and the older ones ferruginous-hairy on the veins (especially beneath); midrib slender, flat or subimpressed above, prominent beneath; secondaries slender, 3--9 per side, ascending, usually arcuate only near the margins, plainly joined in many loops several mm. from the margins, usually subimpressed above, rather sharply prominulent beneath; vein and veinlet reticulation fine, slightly subprominulent on both surfaces or the larger portions subimpressed above and sharply prominulent beneath; inflorescence showy, terminal, sessile, globose, the panicles umbellate-capitate, densely many-flowered, conspicu-

ously bracteose, 15--23 cm. wide, sometimes also borne on the older wood; bracts numerous, foliaceous, short-stalked, elliptic or lanceolate, 1.5--2.7 cm. long, usually about equaling the subtended calyx, clustered in involucrate fashion, 3-veined, pilose on the venation like the leaves and along the margins, apically subulate-acuminate, basally acute or rounded, reticulate; peduncles obsolete or short and hairy; inflorescence-branches obsolete or very much abbreviated and completely hidden by the imbricate bracts, long-pilose like the branchlets; flowers conspicuous, showy, very fragrant; calyx large, tubular-campanulate, 1--2 cm. long, 7--10 mm. wide, pale-green, eventually turning wine-red, lax, deeply 5-parted, its tube short, infundibular, internally glabrous, externally pilose or glabrous and marked with peltate glands, the segments oblong or ovate, 10--12 mm. long, basally united, apically acute, densely ciliate, nearly equal, membranous, erecto-patent, reticulate, externally brown-pilose (especially marginally), often purple or purple-tipped; corolla white, creamy-white, or greenish-white to pale-pink, showy, to 12.5 cm. long, infundibular, externally densely glandular-pubescent, the tube very slender or filiform, elongate, 3--12 cm. long (depending on stage of development), externally glandular-pilose, geniculate below the limb and there ampliate, internally basally puberulent, the segments 5, ovate or subobovate to oblong, 1--1.5 cm. long, 5--7 mm. wide, subequal, apically obtuse, regularly radiate-spreading or sub-oblique, finally recurved, 3--5-veined; stamens inserted at the apex of the corolla-tube, long-exserted; filaments 3.5--4 cm. long, usually 2--3 times the length of the corolla-lobes, upwardly curvate; anthers red; style long-exserted, 10--12 cm. long, glabrous; ovary globose, externally glabrous; fruiting-calyx persistent, accrescent, wine-red; fruit drupaceous, bilobed, composed of 4 nutlets, enclosed by the fruiting-calyx until mature, brilliant dark-purple to black when ripe; seeds "black on one side, with an orange-red aril showing on the other" (*vide Meyer 8036*).

The species is based on *Herb. Willdenow 11682* from the Guinea coast, so designated by Thomas (1936). Collectors have encountered the species in forests, gallery and tropical rainforests, dense thickets, relict forests of *Parinari excelsa*, the understory of dense forests of *Chrysophyllum pruniforme*, *Blighia welwitschii*, *Ficus* sp., *Trecoulea africana*, *Macrolobium limba*, *Anthocleista nobilis*, *Pteris marginata*, and *Bolbitis acrostichoides*, along riverbanks, and along roadsides in recently cultivated land, at altitudes of 280--2300 m., in flower from June to January and in March, and in fruit in April and from July to November. The corollas are uniformly described as having been "white" by all collectors who have bothered to record the color (*viz.*, *Angus 2796*, *Barter s.n.*, *Chevalier 6294*, *6516*, & *13994*, *Lebrun 5130*, *Vogel 34 & s.n.*, and *Zenker & Staudt 428*, but is given as "snow-white" on *Dummer 265* and "creamy-white" by *Bakhuizen (1921)* and by *Synge (1956)*.

Clerodendrum capitatum var. *butayei* DeWild. and var. *butayeri* De Wild. are regarded by me as belonging in the synonymy of *C. angolense* Gürke, *C. capitatum* var. *conglobatum* Thomas is regarded by me as valid (*q.v.*), var. *cordatum* Peter is a synonym of *C. frutectorum*

S. Moore, and var. *talbotii* (Wernh.) Thomas is also valid (q.v.); *C. capitatum* Hook. is a synonym of *C. whitfieldii* Seem. and *C. capitatum* Klotzsch is *Aegiphila macrantha* Ducke.

The *C. capitatum* var. *subcordatum* DeWild., referred to in the synonymy (above) is based on Verdick 422 in the Brussels herbarium.

Bakhuizen (1921) and Baker (1900) include in the synonymy of *C. capitatum* the following taxa: *C. mossambicense* Klotzsch, *C. robustum* Klotzsch, and *C. stenanthum* Klotzsch -- the first of these I regard as a valid taxon distinct from *C. capitatum*, the second is regarded by me as *C. fischeri* var. *robustum* (Klotzsch) Thomas, and the last is a synonym of *C. mossambicense*. Bakhuizen also includes *C. whitfieldii* Seem. as a synonym of *C. capitatum*, but I regard it as a valid taxon. Some other authors include *C. talbotii* Wernh., *C. frutectorum* S. Moore, and *C. hirsutum* G. Don in the synonymy of *C. capitatum*, but I regard the first as *C. capitatum* var. *talbotii* (Wernh.) Thomas, the second as a valid species, and the last as a synonym of *C. umbellatum* Poir.

Clerodendrum obanense, included in the synonymy (above), is based on Talbot 2081 from Oban, deposited in the British Museum herbarium.

Clerodendrum capitatum is described by Irvine (1961) as "almost a tree", while on Claessens 542, Lebrun 5130 and Mullenders 2326 it is referred to as a "liana"; on Mortehan 1097 it is said to be "a herbaceous plant". Claessens 542 exhibits leaves arranged in approximately ternate fashion on the branches. On Chevalier 13994 the plant is described as a "tree 10 m. tall with white latex" (!) [surely an error in observation]. Langsdale-Brown and his associates (1964) describe it as "a climber in both young and old *Piptadenia-Albizzia-Celtis* forests" in Uganda.

Roberty (1954) describes it as "Variable, avec une forme géopyrophyte ou septentrionale, à tiges simples et dressées, non dénommée, et diverses formes méridionales, parfois très, longuement lianescentes."

Willdenow's original (1802) description is: "*Volkameria capitata*. W. † *V. foliis ovatis integerrimis scabris, floribus terminalibus capitatis, calyce foliaceo*. W. Kopfförmiger Volkamerie. W. Habitat in Guinea. † (v. s.). Rami obtuse tetragoni canescentes glabri, a petiolorum rudimentis obtusis prominentibus tuberculati. Folia opposita remota oblongo-ovata acuminata, acumine obtuse mucronato, integerrima venosa, utrinque a pilis dissitis scabriuscula. Flores albi in capitulo terminali breve pedunculato. quinquefloro. Calyx campanulatus, limbo tripartito, laciniis maximis oblongis foliaceis mucronatis reticulato-venosis ciliatis. Corollae tubus filiformis longissimus bipollicaris et ultra, limbo quinquepartito inaequali, laciniis oblongis obtusis. Stamina longissime exserta. Fructus ignotus. W."

Clerodendrum [not *Clerodendron*] *capitatum* (Willd.) Schum. & Thonn. was apparently originally published in Beskr. Guin. Pl. 287 (1827). Pritzel gives the date of this publication as "1828", but the title-page of Schumann & Thonning's paper is imprinted "1827" and the late Dr. John Hendley Barnhart, eminent bibliographer at the New York Botanical Garden, has personally checked carefully and agrees with 1827

as the valid date of publication. The Index Kewensis gives the citation as "Dan. Vid. Selsk. Afh. 4: 61. 1828. Afr. trop." It appears that volume 3 of this series was published in 1828 and volume 4 in 1829, although Kew gives the date as "1828" for volume 4. Dr. Barnhart informed me that he at first thought that vol. 4 contained the original publication and that the other reference was a reprint of it, but after checking through five reliable bibliographic sources he has come to the conclusion that the formerly regarded reprint was the actual original publication.

Hooker (1848) comments that "There never was a period, perhaps, when so many splendid new plants were introduced to our stoves and greenhouses as at the present; and these, it must be confessed, come very much through the instrumentality of our eminent and spirited Nurserymen, and the encouragement given by them to Collectors abroad. The late volumes of the Botanical Magazine will bear me out in this assertion; and the subject now figured is certainly not among the least splendid of recent arrivals. It is from the collection of Messrs. Lucombe, Pince, and Co. of Exeter, and was imported by them through Mr. Whitfield from Sierra Leone. It consequently requires stove heat, and it has the merit of flowering while the plants are small. . . Notwithstanding some slight discrepancies, I have every reason to believe this is the *Volckameria capitata* and equally the *Clerodendron capitatum* of Schumacher, more fully described in the Plants of Guinea. It is a species so little known to Botanists that in DeCandolle's Prodrômus it is placed among 'species denuo recognoscendae'. The length and spread of the corollas are so considerable, that at first sight the capitata character is not distinctly visible; but it will be seen that the bases of the flowers, the calyxes, are collected into a dense head. The fragrance is no less remarkable than the beauty of the flowers and foliage."

Gürke (1893) claims that *C. capitatum* is closely related to *C. fischeri* Gürke, which differs chiefly in its large, very thickly coriaceous, subrotund leaf-blades with very prominent venation, and this statement is quite true. Baker (1900) claims it to be "near *C. buchneri* Gürke. He refers to *C. capitatum* as "Ein kleiner, etwas kletternder Strauch mit langgestielten eiförmigen, zuweilen grobgezähnten, dünnhäutigen Bl[ätter] u. köpfchenförmigen Bl[üthen]ständen, deren nach allen Seiten abstehende, bis 6 cm lange weisse Bl[üthen] einen sehr schönen Anblick gewähren."

Common and vernacular names recorded for *C. capitatum* include "agbul u uwagh", "ayeti", "bibok", "bimbo", "abran", "ekisekeseke", "é titimol", "fermöme", "firi-fore", "fuemömi", "furu-fure", "illiri", "iye", "koloko vuma", "korlejiga", "makanchete", "mashayi", "motuam", "nyekpe", "nyékpe", "obranmotuam", "ododobed", "pfufulla", "pipe-tree", "pipetree", "purtul", "taasen dua", "taasendua", "tabeteo", "tabeto", "tasendua", "tataba", "tete", "tromen", "tromen", and "volkamier capité". The name "furu-fure" is also applied to *C. umbellatum* Poir. and probably to other species as well; the name "mashayi" means "something to drink or smoke with", i.e., a pipe.

Jaeger (1957) reports that the corolla-tubes of *C. capitatum* are

regularly penetrated by the tongues on moths and butterflies for the nectar therein contained.

Watt & Breyer-Brandwijk (1962) report the use of this species as a purgative in Zambia and central Africa, where the natives also "rub the powdered root bark, with other ingredients, into scarifications on the abdominal wall to relieve intestinal troubles". In Tanganyika the hollow stems are used to make smoking pipes.

Seaforth (1963) reports alkaloids and saponins present in this plant. Vergiat (1970) notes that "Pour se parfumer, les femmes indigènes réduisent les fleurs en poudre puis se passent cette poudre sur le cou. La décoction des feuilles, en ablation dans le cas de courbature. Les rameaux tubulaires servent à confectionner les sifflets d'appel fétichiste pour les génies Ngakola et Mbotche. Les feuilles associées à celle de kenga, Zingibéracée, *Costus Schlechteri*, servant à jeter des sorts. Si on les dépose la nuit sur le toit d'une case, on cause une affection à l'occupant. Pour le guérir et le délivrer du maléfice, on lui donne à boire la décoction de la racine après y avoir ajouté quelques gouttes d'huile de palme."

El-Hamidi (1970) reports that in the Sudan the roots of this species are used in treating skin inflammations and swellings. In Zambia the stems "hollowed out by ants", are much sought after by the natives for making pipes for sucking up beer.

Willaman & Li (1970) report finding an unidentified alkaloid in parts of the plant.

Irvine (1961) tells us that "The hollow stems are used as tobacco pipes [in Ghana], and to convey palm-wine from the felled tree to the pot beneath. Good straight poles are made from the stems of this ornamental shrub in Nyasaland (Clements). The root is taken hot for severe stomach pains in Nyasaland (Clements, Herb. Oxf.). A root decoction is drunk on the Iv[ory] Coast for orchitis and elephantiasis of the scrotum, the leaf-pulp with *Capsicum* pepper being used as an enema for the same purpose. This preparation is applied to generalized oedemas. A decoction of leafy stem-tips is considered febrifugal and a decoction of leaves and inflorescences is used for bathingcankers, and as a gargle for toothache." Much the same information is given by Kerharo & Bouquet (1950).

Hansford (1961) records the fungus, *Meliola clerodendri* Hansf., from this host in Ghana, based on Hughes in IMI.43563 & 43587 and *Meliola clerodendricola* P. Henn., based on Deighton CB.1013 and Vanderyst 34386, 43100, 43117, 43136, & 43140, the Deighton collection from Ghana and the Vanderyst collections from Zaire.

Epiphytic hepatics were found on and removed from the leaves of Lebrun 5130 by Dr. D. P. Rogers,

DeWildeman (1909) cites Gentil & Gillet 2764, Gillet s.n., Les-crauwæet 24 & 87, and Seret 135 from Zaire. Chevalier (1913) cites Chevalier 6089 & 10772 from upper Ubangi and 6294 & 6516 from upper Chari, in the Central African Republic, describing the plant as an "Arbuste de 1 a 2 metres de hauteur, baies noirs....fleurs blanches".

Thomas (1936) cites Willdenow 11682 from the Guinea coast; Kersting A.65 from Togo; Vogel 1841 from Ghana; Barter 342, Elliot s.n., Mac Gregor 23, and Millen 45 from Nigeria; Ledermann 4354 & 5212 from the

Cameroons; and *Mechow* 137 from Angola.

Irvine (1961) describes the habitat of *C. capitatum* in Ghana as coastal savannas and closed forests, giving its overall distribution, as known to him, as "Senegambia to Cameroons, Upper Nile Land, Uganda, E. Africa, and the Rhodesias", citing from Ghana *Dalziel* 143, *Deighton* 3430, *Fishlock* 40, *Howes* 945, *Irvine* 748, 873, & 1973, *Vigne* 1331, 2523, & 3445, and *Vogel* s.n.

Huber (1963) cites *Bergaut* 423 & 3157 from Sénégal; *Brooks* 8, *Frith* 125, *Hayes* 502, and *Ingram* s.n. from Gambia; *Chevalier* 832bis, 2573, & 2751 and *Jaeger* 11 from Mali; *Esp. Santo* 3088 from Guinea Bissau; *Caille in Herb. Chevalier* 14678 and *Jacques-Félix* 1880 from the Republic of Guinea; *King* 156b, *Marmo* 289, *Miszewski* 47, and *Thomas* 2233 & 2379 from Sierra Leone; *Harley* 792 from Liberia; *Chevalier* 21938 from Ivory Coast; *Dalziel* 143, *Darke* WACRI.890, *Irvine* 748 & 1973, and *T. Vogel* s.n. from Ghana; *Kersting* A.65 & A.191 from Togo; *Barter* s.n., *Dalziel* 107, *Lely* 435 & 497, and *Noble* 6 from Northern Nigeria; *Barter* 342, *Newberry* 60, *Onochie* FHI.33354, *Punch* 42, and *Talbot* 341 & s.n. from Southern Nigeria; and *Mann* 1975 from the Cameroons. He lists the species, in its typical form, also from Angola, Egypt, Zaire, Sudan, Zambia, and Nyasaland, calling it an "Erect or scrambling shrub". Gillett (1970) lists it from Kenya.

Jaeger & *Moldenke* (1970) give its overall distribution as "native to central and eastern Africa". *Bakhuizen* (1921) lists it from cultivation in Java, and *Syngé* (1956) reports it still cultivated in "stoves" in England. *Rose* (1968) reports it cultivated in France.

Baker (1900) cites *Thierry* s.n. from Sénégal; *Ingram* s.n. from Gambia; *Whitfield* s.n. from Sierra Leone; *Vogel* s.n. from Ghana; *Barter* 342 & s.n., *Irving* 111, & *Millen* 45 from Nigeria; *Johnston* s.n. and *Mann* 1957 from the Cameroons; *Wakefield* s.n. from Kenya; *Hannington* s.n., *Holst* 4256, and *Thomson* s.n. from Tanganyika, several *Peters* collections from Mozambique; and *Buchanan* 1489, *Cameron* 2, *Carson* 63 & s.n., and *Whyte* s.n. from Uganda.

Reis & *Lipp* (1982) cite *Angus* 2796 from Zambia.

Grout de Beaufort & *Schnell* (1956) describe and illustrate the internodal holes made in the stems of this plant by ants, based on *Chevalier* 18846 from Guinea, *Poisson* s.n. from Dahomey, and *Zenker & Staudt* 428 from the Cameroons. They also depict the cauline spines.

Chevalier (1920) cites *Chevalier* 14678 from the Republic of Guinea, 832bis, 2573bis, & 2751 from Mali, 21938 from Ivory Coast, and 13994 from Nigeria. In his 1913 work he cites his nos. 6089, 6294, 6516, & 10772 from the Central African Republic. In his 1911 work he cites his no. 2751 from middle Niger Republic.

Seemann (1862) cites unnumbered *Barter*, *Brass*, *Irving*, and *Vogel* collections, as well as *Vogel* 14 & 34 in the British Museum herbarium. He notes that "Eduard Vogel fand sie an verschiedenen Stellen im Innern Afrikas und Theodor Vogel, sowie fast alle Sammler an der Westküste Afrikas". He claims that it is distinguishable from the related *C. whitfieldii* by the spiny branches and smaller leaves and that the two species form a distinct group in the genus because of the foliose bracts and capitate inflorescences.

Hooker & *Bentham* (1849) cite unnumbered *Vogel* and *Whitfield*

collections from, respectively, Nigeria and Sierra Leone. DeWilde-
man (1912) cites *Claessens* 180 & 542 from Zaire. Berhaut (1967)
cites *Berhaut* 423 & 3157 from Sénégal; Richards & Morony (1969) cite
Lawton 139 from Mbala. Hepper (1965) gives the species' distribu-
tion as Sénégal to Sudan and Malawi, citing his no. 2762 from North-
ern Nigeria.

Hutchinson & Dalziel (1931) cite *Barter* 342, *Elliott* 90, *Ingram*
s.n., *Irving* 111, *Mann* 1957, *Millen* 45, *Talbot* 341 & 2081, *Thierry*
s.n., *T. Vogel s.n.*, and *Whitfield s.n.* from western tropical Africa,
giving the species' overall distribution as "Senegal and French Su-
dan to N. and S. Nigeria! Cameroons Mt., 3,000 ft.! Extends to Upper
Nile Land and E. Africa."

Thomas (1936), in formally typifying this taxon, writes the origi-
nal Willdenow reference as "Sp. Pl. 3, 1 (1800) 384" and the Schu-
mann & Thonning description as "Beskrivelse af Guineiske Planter
(1827) 61. Jackson (1893) abbreviates this as "Dan. Vid. Selsk. Afh.
iv. (1828) 61".

Lefroy (1884) reports *Clerodendrum capitatum* as "Wild around the
rectory;--probably introduced" -- but this is presumably a misidenti-
fication of *C. philippinum* f. *multiplex* (Sweet) Mold.

It should perhaps also be noted here that the Gürke (1893) refer-
ence in the bibliography of *C. capitatum* is sometimes mis-cited as
"1894" and the DeWildeman (1913) reference as "1914" -- in each case
this is the misleading titlepage date for the entire volume.

An artificial key to help distinguish *C. capitatum* from some of
its related species is given by me under *C. buchneri* Gürke in this
present series of notes (q.v.).

Material of *Clerodendrum capitatum* has been misidentified and dis-
tributed in some herbaria as *C. barteri* Baker. On the other hand,
Bainbridge 690 & 727, *Barter* 342, *Buchanan* 1489, *Chancellor* 269,
Enti Sp.40, *Gbile & Olorunfemi FHT.20478*, *Germain* 6880, *Harris s.n.*,
Shantz 532, and *Zenker* 364, 3222, & 3285, distributed as typical *C.*
capitatum, actually are *C. capitatum* var. *conglobatum* (J. G. Baker)
Thomas, while *Allen* 463 and *Peter* 37434 are *C. buchneri* Gürke,
Barbosa 1289, *Exell*, *Mendonca*, & *Wild* 608, *Garcia* 469, *Mendonca* 1241,
and *Torre* 610 & 6774 are *C. fischeri* Gürke, *Watmough* 225 is *C. fru-*
sectorum S. Moore, and *Torre* 3008, 3018, 4341, 5882, 6785, & 8012
are *C. swynnertonii* S. Moore.

Citations: ETHIOPIA: F. G. Meyer 8036 (W--2520043). GAMBIA: A.
J. Brooks & (K). SIERRA LEONE: Jaeger 8613 (Ld), 9824 (Ld). GHANA:
Dalziel 143 (K, N); *Fishlock* 40 (K, Ld--photo, Mi--photo, N--photo).
NIGERIA: *Talbot* 2081 [Mo. Bot. Gard. Type Photos A.849] (Gz--photo,
N--photo). CAMEROONS: *Zenker & Staudt* 428 (Ca--617153). ZAIRE:
Brande 710 (Br); *Bredo s.n.* [Bambesa et environs '33] (Br); *Claessens*
180 (Br, N), 542 (Br, N); *Dewulf* 160 (Br, Br); *Graer* 103 (Br); *Hul-*
staert 1303 (Br); *Lebrun* 5130 (Br, Br); *Mestdagh* 61 (Br); *Montehan*
884 (Br), 1097 (Br); *Mullenders* 2326 (Br); *Overlaet* 147 (Br); *Rey-*
gaert 159 (Br), 1122 (Br), 1297 (Br, N); *Van den Brande* 1929 (Br);
Vanderyst 21552 (Br), 21914 (Br), 22172 (Br); *Verdick* 422 (Br);
Witte 1532 (Br). UGANDA: *Bagshawe* 1247 (W--1349260); *Dümmer* 265
(W--633514); *C. M. Harris* 449 (Br). TANZANIA: Tanganyika: *Peter* 25029
[O.IV.346] (B). ANGOLA: Cuanza Sul.: *Gossweiler* 9845 (W--1579414).

[to be continued]